so close upon the horizon the conditions for glimpsing the fainter sections of its track were extremely unfavourable. It is certain that the low-lying vapours combined with the excessive distance in obliterating the streak which remained so persistent at Sunderland. The same effects were produced by similar causes in the case of the Perseid fireball, the streak of which endured at Leeds for three minutes, whereas at Bristol, the distance being greater and altitude of the object much less, it continued to be seen no longer than 40 secs. It will be interesting during future observations to compare the heights of the durable streaks which are so often generated by fireballs, and to further trace the effects of distance and altitude upon their visibility at different stations.

The diagram represents successive views of the streak left by the recent Leonid fireball. This feature had become very faint at $17^h\ 28^m$ (9 min. after first appearance), when it was just observable with an opera-glass, power 4.

Bristol: 1888, *December* 12.

The Great Southern Comet (1887 I). By Dr. H. Oppenheim.

(*Extract from a letter to Mr. Knobel.*)

Being at present occupied with a determination of the orbit of the great Southern Comet (1887 I), I have examined some observations made at sea by Captain Molony, which appeared in the *Monthly Notices*, vol. xlvii. p. 432.

As altogether only 19 observations of this Comet are known, earlier observations have great importance, as sextant observations have equal value with those of fixed instruments, which give distances to half a degree (*Astronomische Nachrichten*, Band 117, p. 13).

Captain Molony's observations as printed in the *Monthly Notices* appear, however, to be incorrect, as will be seen from the accompanying comparison. Would it be possible for you to make the observer acquainted with this, and inform me as to his reply? *

The following results are obtained from a comparison of the observations of Comet 1887 in the *Monthly Notices*, vol. xlvii. p. 432 (taking refraction into account) with the elements given in the *Astronomische Nachrichten*, 117, p. 13.

* Lieut. Baillie, of the Meteorological Office, has kindly compared the observations as printed in the *Monthly Notices* with Capt. Molony's meteorological log, and finds they have been correctly copied, so that the errors must rest with the observer.

1887, Jan. 21. Measured distance.	Obs.—Com. R.A. $\Delta\alpha$	Dec. $\Delta\delta$
	° ′	° ′
Canopus—α Crucis	−3 50	+0 45
Canopus—Rigel	+3 0	+3 4
α Crucis—Rigel	+0 23	−0 24
January 22:		
Canopus—α Crucis	+0 31	+0 37
Canopus—α Arietis	+0 11	+0 30
α Arietis—α Crucis	−0 3	+0 46
January 25:		
Canopus—α Crucis	+2 27	+0 41
Canopus—Rigel	+1 11	+0 5
α Crucis—Rigel	+1 28	+0 51

From this it appears that the measured distance of the Comet from *Canopus* on January 21 and the measured distance from α *Crucis* on January 25 are incorrect. This is clear from the following:

Assuming the R.A. and Decl. of the Comet as known, from the ephemerides, and comparing the observed distances of the Comet from the stars, we obtain the following differences between computation and observation:

January 21:	Canopus	+2° 5′
	α Crucis	−0 13
	Rigel	−0 14
January 22:	Canopus	+0 23
	α Crucis	+0 45
	α Arietis	−0 18
January 25:	Canopus	−0 19
	α Crucis	+1 4
	Rigel	−0 40

Berlin: 1888, *Dec.* 14.

Note on the Spectrum of Comet e 1888 (*Barnard, September* 2).

By Dr. R. Copeland.

The spectrum was first examined on November 14. It presented a strange appearance, that at first sight was very puzzling, for instead of the feeble separate bands that usually characterise faint cometary spectra, the spectroscope revealed a rather long, continuous spectrum, extending from W.L. 575^{mmm} to W.L. 450^{mmm}, brighter in the middle and fading gradually away at both ends. It was, in fact, far more like that of a close globular cluster of stars, or a non-gaseous nebula, than of a mass of self-luminous gas. Owing to the spreading of the light over so great a part of the spectrum, a wide slit was imperatively necessary to permit of distinguishing any special features. Under this condition the spectrum seemed scarcely to differ from that of the zodiacal light or faint daylight, but on close scrutiny a soft, brighter patch of light was recorded at a point that turned out to have a W.L. of $510{\cdot}5^{mmm}$, and eventually an extremely feeble increase of light was detected at $476{\cdot}5^{mmm}$. These brighter patches probably represent the second and third cometary bands.

On November 26 similar observations were made, but with the addition that some traces of superposed brightness, indicative of the first band, were also distinguished. On December 5 the first and second bands only were measurable, but on the wonderfully clear night of December 8 all three bands were distinctly seen and recognised in and about the comet's nucleus. On each occasion the continuous spectrum already described formed the ground on which the brighter bands were superposed. The following summary shows the results of the measures, which were all made with the Grubb star-spectroscope and a simple prism of 60° angle.